REMARKS

The Interview

Applicants thank the Examiner for the interview held on May 18, 2010. The substance of the interview is accurately reflected in the interview summary provided by the Examiner.

Claim Amendments

The features of claim 2 are incorporated into claim 1.

Support for the amendment of claim 2, can be found, e.g., in the examples.

New claims 21 and 22 are identical to claim 1 with the exception of their use of "consisting essentially of" and "consisting of" terminology.

Claim Objection

The objection is moot in view of the amendment to claim 16 as suggested by the Examiner.

Claim Rejections Under 35 USC § 103

The rejections are moot in view of the amendments, and especially in view of the amendments in view of the data provided in the application demonstrating significant unexpected advantages with the claimed invention.

Drost discloses on column 2, lines 34-35, that deposits of relatively pure natural zeolies have been discovered, which are processed to provide agglomerates (see the rest of Drost). The ore tested on column 7 contains about 67 weight percent of a combination of chabazite-erionite-clinoptilolite. No further characterization of the content of each type of zeolite is provided.

Contrary to the naturally found processed ore of Drost, the product claims herein are directed to a combination of specific zeolites in specific amounts that are not taught or suggested by Drost. Drost does not teach or suggest any modification of the ores processed, but merely takes what was found in the deposits and processes them to a usable product.

Moreover, nothing in Drost even incidentally teaches a product as recited in, e.g., claim 12 where the zeolite defined in ① consists essentially of zeolite 3A.

Nevertheless, and because data are already provided in the application, the patentability of the claimed invention is further supported by said data demonstrating unexpected advantages with the claimed invention.

Table 1 in the application provides several embodiments of the claimed invention and of comparisons. See page 7. The comparisons are not of Drost, as no details of the product(s) therein were provided sufficient enough for one to be able to reproduce the same. Instead, they are of zeolite 3A with a clay binder (which is a commercial product NK-30 as provided at the bottom of page 6 of the application) and are of two different chabazites in combination with a clay binder (AW-500 and CHA-I). As explained even by Drost, typically it is necessary to use a binder, e.g., clay, to be able to form agglomerates. See column 2, lines 3-33. The reason no binder was used in the processed ore of Drost is explained on column 2, lines 50-57, i.e., because said ores contain various impurities, and as such, the use thereof as adsorbents does not generally permit the addition of binder materials without greatly reducing the adsorptive capacity of the already impure materials.

Table 5 demonstrates that the tested embodiment of the claimed invention unexpectedly and significantly had better retention of mechanical strength than two comparisons after exposure to acid gases. The zeolite NK-30 retained the least amount of mechanical strength, i.e., 46%, 50%, and 73%, depending on the zone of the column tested, i.e., gas inlet, mid-column, and gas outlet. As one would expect, the most deterioration occurred at the gas inlet, which corresponds to the zone most saturated with wet and acid hot gas. Comparison CHA-i performed better than NK-30, i.e., 73%, 76%, and 60% retention of mechanical strength, with interestingly, the most deterioration occurring at the gas outlet. CHA-d according to the claimed invention had however markedly better mechanical strength retention, despite not containing a claim binder, than either NK-30 or CHA-2, each of which contain 20% clay (see Table 1). The mechanical strength retention was 72%, 84% and 80% with CHA-d. Such significant improvement would not have been expected by one of ordinary skill in the art in view of the cited art.

Table 3 provides results for all the products from Table 1 regarding COS formation, which is undesired as explained in the disclosure on pages 2-4. The results demonstrate that with the products according to the claims, the amount of COS measured was <70, <70, 80, and 150 ppmv, while with the comparison products, the amount was 300, >450 and >450 ppmv. Such

drastic reduction in COS formation would be unexpected by one of ordinary skill in the art.

Unexpected results are also provided for a synthetic zeolite together with clinoptilolite type zeolite according to the claimed invention over NK-30. Both NK-30 and the claimed zeolitic composition contain 80% 3A zeolite, with NK-30 using 20% clay as binder, while the claimed zeolitic composition uses 20% clinoptilolite. Table 6 illustrates the results with NK-30, over a period of sampling. For example, products in the samples at 40 minutes include 280 mg/l or acetaldehyde, 27 mg/l of ethylene oxide, and 4 mg/l of diethyl ether. As the process continues, the trend appears to be a reduction of these products, e.g., by 100 minutes to 25 mg/l or acetaldehyde, 11 mg/l of ethylene oxide, and 6 mg/l of diethyl ether. See table 6 at the bottom of page 11 for complete results. However, with the claimed zeolitic composition, products in the samples at 40 minutes include 27 mg/l or acetaldehyde, less than detection limit of ethylene oxide, and 4 mg/l of diethyl ether. As the process continues, the trend here too appears to be a reduction of these products, e.g., by even 92 minutes to 9 mg/l or acetaldehyde, less than detection limit of ethylene oxide, and less than detection limit of diethyl ether. These results too would not have been expected by one of ordinary skill in the art in view of the cited art.

In view of the foregoing, reconsideration is respectfully and courteously requested.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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